

# Response ID ANON-8U19-V5Y8-K

Submitted to **ENTSO-E Connection Network Codes\_revised Implementation Guidance Documents\_November 2020**

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## Introduction

### 1 What is your name?

**Name:**

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### 3 What is your organisation?

**Organisation:**

WindEurope

### 4 I want my answer to remain anonymous. If you tick this box, we will publish your comments but we will not publish your name and organisation.

**I want my answer to remain anonymous:**

No

### 5 I want my answer to remain confidential - If you tick this box, we will not publish your answer to this consultation

**I want my answer to remain confidential:**

No

### 6 I agree to ENTSO-E's Consultation Hub privacy policy

**I agree to ENTSO-E's Consultation Hub privacy policy (Required):**

Yes

## IGD on Autonomous connection/reconnection and admissible rate of change of active power

### 1 Do you consider this IGD helpful?

yes

### 2 Does the content of the IGD cover the technical issues of this topic appropriately?

yes

### 3 Comments on the technical (or other) information within this IGD

**Technical or other comments :**

The most important change is in the wording (from "Automatic" to "Autonomous") which is a reasonable recommendation. The content remains basically unchanged apart from two modifications:

According to the previous version, Type D generating units were not allowed to perform "automatic" connection/reconnection. Based on the revised version "autonomous" connection/reconnection of Type D units "is not recommended". This redaction is more consistent with the NC RfG.

Recommendations for  $\Delta\theta$ ,  $\Delta U$  and  $\Delta f$  were added to the general default settings for reconnection. A clarification on how to understand the "Maximum gradient of active power increase" has been added as well. These are useful additions.

As in other updated IGDs, the presentation of former practices in different countries has been suppressed. Including an annex with the values currently proposed in national implementations would be very helpful.

WindEurope has provided ENTSO-E with a detailed list of issues – technical, editorial, general – directly commenting the revised IGD texts (sent by email to ioannis.theologitis@entsoe.eu, in excel format) with a separate section of comments per revised IGD text.

## IGD on Demand Response\_System Frequency Control

### 1 Do you consider this IGD helpful?

yes

## 2 Does the content of the IGD cover the technical issues of this topic appropriately?

yes

### 3 Comments on the technical (or other) information within this IGD

#### Technical or other comments :

This IGD has experienced only few changes, just the introductory redaction, without any change on technical content. The revised version includes maximum frequency deviations recommended for each synchronous area. The previous version did not include this information because the technical work was ongoing. In addition, a minor change in the upper threshold for GB area has been proposed.

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## IGD on Parameters of Non-exhaustive Requirements

### 1 Do you consider this IGD helpful?

yes

## 2 Does the content of the IGD cover the technical issues of this topic appropriately?

yes

### 3 Comments on the technical (or other) information within this IGD

#### Technical or other comments :

WindEurope welcomes this opportunity to provide feedback on the revision of Implementation Guidance Documents. Overall, the revision is very relevant and will certainly improve the application of various aspects of grid connection requirements at national level.

However, the NC RfG (or EU directive) has been published in 2016 and national implementation should have been finalised two years later. The objective of these IGDs was to support national implementation. Nonetheless, certain aspects of national implementation have already been finalised, so revisions come too late in the process regarding these aspects.

In certain cases, such as for example frequency range and exhaustive requirements, it may no more be relevant to update the IGDs but rather to consider this revised content for an RfG update overall (RfG V2.0). In other cases, such as compliance assessments, simulations, tests, and equipment certificate the discussion at national level is still open thus the respective IGD revisions (e.g., on compliance verification) will indeed support the national processes and hopefully harmonize those across the different member states.

IGD for Non-Exhaustive requirements:

The revised IGD provides a good overview of non-exhaustive requirements and related to them generic information. A general concern is that it seems that most requirements are now non-exhaustive. This might lead to many variations when it comes to national implementation. It would be helpful to include a table presenting the exhaustive requirements as well.

This IGD is replacing the previous excel table "CNC\_Non\_exhaustive\_requirements\_171212.xlsx". The revised version is more readable and easier to manage for identifying the different specifications. However, the previous excel table also included parameters proposed by the different countries (by the end of 2017) and this was useful guidance. The revised document should also include comparative tables with the parameters adopted by the different countries.

Some specific points on HVDC Non-Exhaustive Requirements – Frequency Issues:

Wider frequency ranges: HVDC components such a transformer will require special design consolidations to operate without saturation at under frequency ranges and the required time of operation under these conditions. This will have an impact on the CAPEX of the equipment.

Drives providing air and water cooling for the HVDC system will require special deign consolidations to operate under extended under and over frequency ranges. This will have an impact on the CAPEX of these equipment. Out the shelf equipment cannot be utilized if extended frequency deviations are applied.

Fast Active Power Reversal: Fast active reversals will impact the DC transmission cable design. The converters may reverse the power very fast, but the DC cable may impact the reversal time and should be taken to consternation. The fast power reversal may impose transients in the connected AC system. The power reversal requirement should define the limits of the AC system short circuit capacity.

(Repeated from previous IGD: WindEurope has provided ENTSO-E with a detailed list of issues – technical, editorial, general – directly commenting the revised IGD texts (sent by email to ioannis.theologitis@entsoe.eu, in excel format) with a separate section of comments per revised IGD text. )

## IGD on Maximum Admissible Active Power Reduction at Low Frequencies

### 1 Do you consider this IGD helpful?

yes

### 2 Does the content of the IGD cover the technical issues of this topic appropriately?

yes

### 3 Comments on the technical (or other) information within this IGD

#### Technical or other comments :

The revision brings no changes in the core technical content only an update of the text and presentation. Annex 1 (Approach in current grid codes) of the previous version is not included in the revised one. A comparative annex including final national approaches would be very useful.

IGDs provide indeed guidelines for EU codes implementation at national level. However, the evolution of networks should be monitored every 15 -20 years, and the update of actual national codes shall remain the focus (and not only the update of IGDs).

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### IGD on Frequency Ranges

#### 1 Do you consider this IGD helpful?

yes

#### 2 Does the content of the IGD cover the technical issues of this topic appropriately?

#### 3 Comments on the technical (or other) information within this IGD

##### Technical or other comments :

Repeated from previous IGD but important also for this case: WindEurope welcomes this opportunity to provide feedback on the revision of Implementation Guidance Documents. Overall, the revision is very relevant and will certainly improve the application of various aspects of grid connection requirements at national level.

However, the NC RfG (or EU directive) has been published in 2016 and national implementation should have been finalised two years later. The objective of these IGDs was to support national implementation. Nonetheless, certain aspects of national implementation have already been finalised, so revisions come too late in the process regarding these aspects.

In certain cases, such as for example frequency range and exhaustive requirements, it may no more be relevant to update the IGDs but rather to consider this revised content for an RfG update overall (RfG V2.0). In other cases, such as compliance assessments, simulations, tests, and equipment certificate the discussion at national level is still open thus the respective IGD revisions (e.g., on compliance verification) will indeed support the national processes and hopefully harmonize those across the different member states.

##### IGD for Frequency Ranges:

The revised IGD explains very well the principles behind of coordination the frequency ranges for the different facilities. On the other side the IGD suggests extending frequency ranges for power generating facilities, which are not in line with developing requirements. Especially the proposal for the extended frequency ranges for Central Europe:

- 90 minutes for 51,0 Hz to 51,5 Hz
- 60 minutes for 51,5 Hz to 52,0 Hz (frequency range wider compared to NC RfG requirement)
- 30 minutes and description for longer minimum time periods for 47,5 Hz to 48,5 Hz and 48,5 Hz to 49,0 Hz

but also the respective ones for Ireland should not be stated in the revised IGD.

The recommended values have not been consulted with relevant stakeholders and no other justification has been provided for their choice e.g., new simulations/studies by TSOs or analysis based on some incidents or just reflections of actual agreements between TSOs in the respective areas (Central Europe, Ireland). Such significant increase of requirements cannot be imposed through an IGD revision. If relevant and necessary, these would need to be proposed and consulted through the official process of Network Code revision (which could afterwards be supported by relevant Implementation Guidance Documents).

Such unilateral decisions or proposals can have important negative implications in terms of equipment cost, sustainability and harmonisation of requirements among countries. For example, in the case of wind turbine technology, equipment which has been designed and developed based on the NC RfG (published in 2016) may suddenly not fulfill the Network Code requirements anymore. Also, suggesting new frequency ranges in specific regions is a step back in terms of harmonisation of requirements across Europe. Frequency range was supposed to be an exhaustive requirement. For example, the revised IGD mentions Spain as an example for widening the frequency range requirement, but finally the recommended values are lower than the ones for the Canary Islands; Recommending such changes without supporting them with stability studies will have a significant impact on the total equipment cost.

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# IGD on Compliance Verification - Compliance Testing and Use of Equipment Certificates

## 1 Do you consider this IGD helpful?

yes

## 2 Does the content of the IGD cover the technical issues of this topic appropriately?

## 3 Comments on the technical (or other) information within this IGD

yes

### Technical or other comments :

Repeated from previous IGD but very relevant also to this one:

WindEurope welcomes this opportunity to provide feedback on the revision of Implementation Guidance Documents. Overall, the revision is very relevant and will certainly improve the application of various aspects of grid connection requirements at national level.

However, the NC RfG (or EU directive) has been published in 2016 and national implementation should have been finalised two years later. The objective of these IGDs was to support national implementation. Nonetheless, certain aspects of national implementation have already been finalised, so revisions come too late in the process regarding these aspects.

In certain cases, such as for example frequency range and exhaustive requirements, it may no more be relevant to update the IGDs but rather to consider this revised content for an RfG update overall (RfG V2.0). In other cases, such as compliance assessments, simulations, tests, and equipment certificate the discussion at national level is still open thus the respective IGD revisions (e.g., on compliance verification) will indeed support the national processes and hopefully harmonize those across the different member states.

This IGD has undergone a very comprehensive revision including the title. IECRE WG010 commented it last year and ENTSO-E has already adopted certain comments. The general revision is positive. The document is easier to read (first version was quite confusing), the scope is organized in a better way and the definitions are more detailed.

The document defines the terms and various definitions which are used in compliance verification. This is very relevant and useful as in many Members States the compliance verification topic is still open and these aspects have a big impact on many relevant parties e.g., manufacturers and PPM owners/ developers. In specific this IGD may require manufacturers to perform type tests, model validation and certification, defining the point of certification/evaluation/verification and the point of connection. All these aspects will have an impact on the different projects (design, equipment, timelines...).

A positive aspect is that this IGD also introduces the Unified Modelling Language (UML) and proves how useful certification is as part of the compliance verification process. Indeed, the revised IGD now reflects the actual role of certificates in the compliance verification process (as also highlighted in the title). The previous version reflected doubts about that role while the revised IGD shows actual trends, is more adapted to the situation and explains the available country codes. However, the previous version also contained information about the former processes in certain countries. Such information was very useful but is not included in the revised version. It would be very much appreciated if the revised version could contain annexes outlining such processes in a couple of countries (Germany, France, Italy, Spain...).

However, even though the revised version contains more detailed definitions, several aspects of compliance verification are still not sufficiently clarified. Many different terms are still used e.g. equipment, unit, type, facility, module which makes it hard to define a clear approach for a PPM project. The defined certificates include system certificate, component certificate, module certificate, unit certificate and demand unit certificate. All these certificates are essentially equipment certificates (EqC).

The mandatory and non-mandatory requirements for equipment certification as well as compliance verification were not aligned with the RfG guidelines and therefore needed confirmation. The terms such as validation, assessment and verification were inappropriately used which made the document complex to understand. It also required reference to other documents such as NC RfG, NC HVDC, etc. for validation. This issue had been communicated by IECRE WG010 to ENTSO-E.

There are some additional positive aspects such as a clear statement that the double verification process must be avoided, better description of the official documents in any stage of the facility's life and how they are related with testing and certification process, clear information about the performance parameters that must be verified (mandatory) and those that are eligible in the different countries.

(Repeated but very relevant with this specific IGD: WindEurope has provided ENTSO-E with a detailed list of issues – technical, editorial, general – directly commenting the revised IGD texts (sent by email to ioannis.theologitis@entsoe.eu, in excel format) with a separate section of comments per revised IGD text. )